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CLAIMS

1. A pair of inverter circuits provided so that alternating voltages are applied respectively to both ends of a driven unit, characterized by having a means for indirect connection indirectly connecting the pair of inverter circuits.
2. The pair of inverter circuits of claim 1, characterized by the alternating voltages applied respectively to both ends of the driven unit having a reverse phase relationship with respect to each other.
3. The pair of inverter circuits of claim 1 or 2, characterized in that the means for indirect connection is a connection that does not involve movement of a conduction carrier of the pair of inverter circuits.
4. The pair of inverter circuits of claims 1 to 3, characterized in that the means for indirect connection is a connection that utilizes an inductive coupling effect.
5. The pair of inverter circuits of claim 4, characterized in that the means for indirect connection uses inductive coupling between windings provided in each inverter circuit.
6. The pair of inverter circuits of claim 5, characterized in that the inductive coupling between windings comprises coupling between tertiary windings not used in self-excited oscillation of each inverter circuit, or coupling between choke coils of each inverter circuit, or coupling between secondary windings not used in a power supply of a driven unit of each inverter circuit, or coupling between windings connected in parallel to tertiary windings used in self-excited oscillation.
7. The pair of inverter circuits of claim 6, characterized in that the coupling between tertiary windings not used in self-excited oscillation or the coupling between secondary windings not used in a power supply of a driven unit comprises direct coupling, coupling via transformer, or proximity coupling of parallel coils.

8. The pair of inverter circuits of claim 6 or 7, characterized in that, when inductive coupling between windings involves coupling between tertiary windings not used in self-excited oscillation of each inverter circuit, a number of turns of the tertiary windings used for indirect connection is less than a number of turns of a tertiary winding used in self-excited oscillation.

9. The pair of inverter circuits of any of claims 6 to 8, characterized in that, when inductive coupling between windings involves coupling between tertiary windings not used in self-excited oscillation of each inverter circuit, the two ends of the driven unit are respectively connected by a secondary winding of an inverter transformer having a tertiary winding used in self-excited oscillation and a secondary winding of an inverter transformer having a tertiary winding not used in self-excited oscillation.

10. The pair of inverter circuits of claim 6, characterized in that the coupling between choke coils or the coupling between windings connected in parallel to tertiary windings used in self-excited oscillation comprises coupling via transformer, proximity coupling of parallel coils, transformed coupling, or simple proximity coupling.

11. The pair of inverter circuits of any of claims 1 to 10, characterized in that each inverter circuit using the means for indirect connection comprises two 1-input, 1-output inverter transformers, wherein primary windings of the two inverter transformers are wound in reverse with respect to each other.

12. The pair of inverter circuits of any of claims 1 to 10, characterized in that each inverter circuit using the means for indirect connection comprises one 1-input, 2-output inverter transformer, wherein two secondary windings of the inverter transformer are wound in reverse with respect to each other.

13. The pair of inverter circuits of any of claims 1 to 10, characterized in that each inverter circuit using the means for indirect connection comprises two 1-input, 2-output inverter transformers, wherein two secondary windings of each of the inverter transformers are wound in reverse with respect to each

other, and each primary winding of the two inverter transformers is wound in reverse with respect to the other.

14. A fluorescent tube lighting apparatus having the pair of inverter circuits of any of claims 1 to 13 and a fluorescent tube as a driven unit connected to the inverter circuits.

15. A fluorescent tube lighting apparatus configured using a plurality of the fluorescent tube lighting apparatuses, wherein all fluorescent tubes in the fluorescent tube lighting apparatus are disposed so as to be arranged in parallel, characterized by having a means for indirect connection that indirectly connects each fluorescent tube lighting apparatus so that the phases of voltages applied to each fluorescent tube are inverted sequentially per each fluorescent tube or per the number of fluorescent tubes of each fluorescent tube lighting apparatus.

16. The fluorescent tube lighting apparatus of claim 15, characterized in that the means for indirect connection of the fluorescent tube lighting apparatuses uses inductive coupling between windings provided in each fluorescent tube lighting apparatus.

17. The fluorescent tube lighting apparatus of claim 16, characterized in that the inductive coupling between windings according to the means for indirect connection of fluorescent tube lighting apparatuses comprises coupling between tertiary windings not used in self-excited oscillation of each of the inverter circuits, or coupling between choke coils of each inverter circuit, or coupling between secondary windings not used in a power supply of a driven unit of each inverter circuit, or coupling between windings connected in parallel to tertiary windings used in self-excited oscillation.

18. The fluorescent tube lighting apparatus of claim 17, characterized in that, in the means for indirect connection of fluorescent tube lighting apparatuses, the coupling between tertiary windings not used in self-excited oscillation or the coupling between secondary windings not used in a power supply of a driven

unit comprises direct coupling, coupling via transformer, or proximity coupling of parallel coils.

19. The fluorescent tube lighting apparatus of claim 17, characterized in that, in the means for indirect connection of fluorescent tube lighting apparatuses, the coupling between choke coils or the coupling between windings connected in parallel to tertiary windings used in self-excited oscillation comprises coupling via transformer, proximity coupling of parallel coils, transformed coupling, or simple proximity coupling.

20. A backlight apparatus, characterized by having the fluorescent tube lighting apparatus of any of claims 14 to 19.

21. A backlight apparatus, characterized by having the fluorescent tube lighting apparatus of any of claims 14 to 19, a reflector plate disposed facing a fluorescent tube comprised by the fluorescent tube lighting apparatus that reflects light emitted by the fluorescent tube to the fluorescent tube side, a light diffuser disposed facing the side of the fluorescent tube opposite the side on which the reflector plate is disposed to thereby sandwich the fluorescent tube, and a liquid crystal panel disposed facing the side of the fluorescent tube opposite the side on which the reflector plate is disposed to thereby sandwich the fluorescent tube.

22. A backlight apparatus according to the backlight apparatus of claim 20 or 21, characterized in that fluorescent tubes are all disposed in parallel and in a horizontal direction.

23. A liquid crystal display characterized by having the backlight apparatus of any of claims 20 to 22, and a liquid crystal panel facing a surface of a light-guiding plate of the backlight apparatus that emits planar light, wherein the liquid crystal panel gradually changes the transmittance of light to display a specified image.

24. A pair of inverter circuits provided at two ends of a driven unit, characterized in that the inverter circuits have a plurality of inverter transformers having a

primary winding and a higher-order winding that transforms voltage input into the primary winding, and a self-excited oscillation circuit for converting direct current input into the primary winding into alternating current, wherein at least one of the plurality of inverter transformers of each inverter circuit has a plurality of higher-order windings, and the inverter circuits comprise a means connecting one of the higher-order windings of the inverter transformer having a plurality of higher-order windings to the self-excited oscillation circuit, a means connecting another of the higher-order windings to a driven unit, and a means connecting a higher-order winding of an inverter transformer other than an inverter transformer having a higher-order winding connected to a self-excited oscillation circuit of one inverter circuit to a higher-order winding of an inverter transformer other than an inverter transformer having a higher-order winding connected to a self-excited oscillation circuit of the other inverter circuit.

25. A pair of Inverter circuits provided in a pair at two ends of a driven unit, characterized in that the inverter circuits have an inverter transformer having at least one secondary winding and a plurality of feedback windings with respect to one primary winding, and a self-excited oscillation circuit for converting direct current input into the primary winding into alternating current to generate alternating current in the secondary winding, wherein the inverter circuits comprise a means connecting at least one feedback winding of the feedback windings of an inverter transformer of each inverter circuit to the self-excited oscillation circuit, and a means connecting at least one of the feedback windings not connected to a self-excited oscillation circuit of an inverter transformer of one inverter circuit to at least one of the feedback windings not connected to a self-excited oscillation circuit of an inverter transformer of the other inverter circuit.

26. A pair of Inverter circuits provided at two ends of a driven unit, characterized in that the inverter circuits are provided with at least two inverter transformers

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having a primary winding, a secondary winding and a feedback winding, the primary windings of each inverter transformer are connected in parallel, a primary winding of each inverter transformer is connected in parallel to a common resonance capacitor, a center-tap is provided in a primary winding of each inverter transformer and each center-tap is connected to a direct current supply via a common choke coil, both ends of the feedback winding of at least one inverter transformer of the inverter transformers are respectively connected to each control electrode of a pair of switching elements, each output electrode of the pair of switching elements is respectively connected to the two ends of the resonance capacitor, and an emitter of the pair of switching elements is grounded, the inverter circuit being a self-excited oscillation type inverter circuit driving each of the pair of switching elements in a push-pull manner, wherein the inverter circuits comprise a means connecting together two ends of feedback windings of at least one inverter transformer not used in self-excited oscillation in each inverter circuit, and a means grounding the other end of a secondary winding of the inverter transformer in each inverter circuit.

27. The pair of inverter circuits according to claim 24 or 26, characterized in that one end of a secondary winding of an inverter transformer having a feedback winding used in self-excited oscillation among the inverter transformers of one of the inverter circuits is connected via a fluorescent tube to one end of a secondary winding of an inverter transformer having a feedback winding not used in self-excited oscillation among the inverter transformers of the other inverter circuit.

28. A pair of inverter circuit provided at two ends of a driven unit, characterized in that the inverter circuits have at least one inverter transformer having a plurality of secondary windings and a plurality of feedback windings with respect to one primary winding, a primary winding of each inverter transformer is connected in parallel to a common resonance capacitor, a center-tap is provided in a primary winding of each inverter transformer and each center-tap

is connected to a direct current supply via a common choke coil, the two ends of at least one of the feedback windings of the plurality of feedback windings of each inverter transformer are respectively connected to each control electrode of a pair of switching elements, each output electrode of the pair of switching elements is respectively connected to the two ends of the resonance capacitor, and an emitter of the pair of switching elements is grounded, the inverter circuit being a self-excited oscillation type inverter circuit driving the pair of switching elements in a push-pull manner, wherein each inverter circuit uses at least one feedback winding of the plurality of feedback windings of an inverter transformer for self-excited oscillation, and wherein the inverter circuits have a means connecting both ends of at least one feedback winding other than a feedback winding used in self-excited oscillation among the feedback windings of an inverter transformer of one inverter circuit to both ends of at least one feedback winding other than a feedback winding used in self-excited oscillation among the feedback windings of an inverter transformer of the other inverter circuit, a means connecting respectively via a driven unit one end of each secondary winding of an inverter transformer of one inverter circuit with one end of each secondary winding of the inverter transformer of the other inverter circuit, and a means grounding the other end of each secondary winding of the inverter transformer in each inverter circuit.

29. The pair of inverter circuits according to any one of claims 24 to 28, characterized in that the number of turns of a feedback winding connecting together feedback windings of an inverter transformer of each inverter circuit is made less than the number of turns of a feedback winding used in self-excited oscillation.

30. A fluorescent tube lighting apparatus, characterized by comprising the The pair of inverter circuits of claims 24 to 29 and using a fluorescent tube as the driven unit, wherein a fluorescent light is lit by the inverter circuits.

31. A fluorescent tube lighting apparatus, characterized by comprising a plurality

of the pair of inverter circuits of claims 24 to 29, wherein a fluorescent tube as the driven unit is connected to the respective inverter circuits.

32. A backlight apparatus, characterized by comprising the fluorescent tube lighting apparatus of claim 30 or 31, a reflector plate disposed facing a fluorescent tube comprised by the fluorescent tube lighting apparatus that reflects light emitted by the fluorescent tube to the fluorescent tube side, and a light diffuser disposed facing the side of the fluorescent tube opposite the side on which the reflector plate is disposed.

33. A backlight apparatus, characterized by comprising the fluorescent tube lighting apparatus of claim 30 or 31, and a light-guiding plate that converts light emitted by a fluorescent tube comprised by the fluorescent tube lighting apparatus into planar light.

34. A liquid crystal display, characterized by comprising the backlight apparatus of claim 33 and being provided with a liquid crystal panel on a side opposite the side of the light diffuser of the backlight apparatus on which a fluorescent tube is disposed, wherein the liquid crystal panel changes the transmittance of light emitted from the backlight apparatus to display a specified image.

35. A liquid crystal display characterized by comprising the backlight apparatus of claim 34 and being provided with a liquid crystal panel facing a surface of the light-guiding plate of the backlight apparatus that emits planar light, wherein the liquid crystal panel changes the transmittance of light emitted from the backlight apparatus to display a specified image.

FIG.8

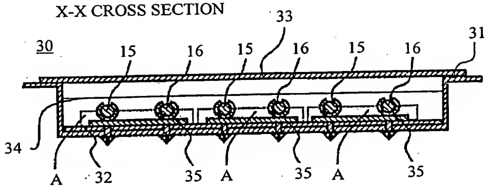
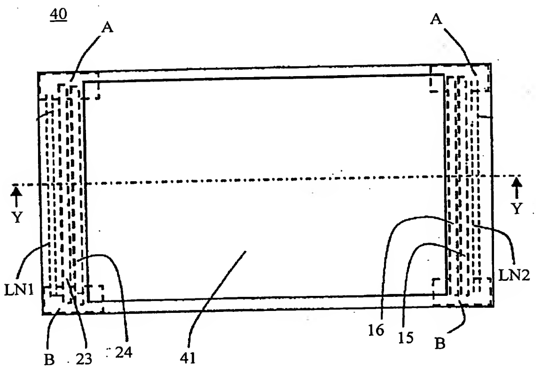

X-X CROSS SECTION
30
15
16
15
33
16
15
16
31
34
A
32
35
A
35
A
35

FIG.9


40
A
A
Y
Y
LN1
LN2
B
23
24
41
16
15
B